1. Codebreaker

Program Name: Codebreaker.java Input File: codebreaker.dat

This encryption algorithm is a variation of the substitution cipher. Each letter in the plain text is replaced by some letter of the alphabet in the encrypted text. A letter could be replaced by itself. You can think of the encrypted message as a simple permutation of the letters of the alphabet. Assume that the encrypted messages are only composed of lower case letters of the English alphabet. There are no upper case letters, digits, or punctuation marks in either the plain text or encrypted text. Words are separated by single spaces. You are given a dictionary of known words that could be in the encrypted message. Given a message that appears to be encrypted, determine if you can decrypt it using the words in the dictionary. If you can decrypt the message, print the decrypted message. Otherwise print that the message cannot be decrypted. Assume that a message can be decrypted if there exists some permutation such that all of the decrypted words are in the known words list.

Input

The first line of input contains two integers N and M. N is the number of words in your dictionary and M is the number of encrypted messages you must decrypt. The next N lines are the words in your dictionary, one word per line, in lowercase. Following the dictionary are M lines of messages, each encrypted in the manner described above. Assume that each message is encoded using a different permutation of letters and that if the message can be decrypted there is only one valid decryption.

Output

For each encrypted message, print out its decrypted form, or print that it cannot be decrypted.

Constraints

```
1 <= N <= 80
1 <= M <= 20
```

Example Input File

```
6 3
and
dice
jane
puff
spot
yertle
xxxx yyy zzzz www yyyy aaa bbbb ccc dddddd
hxsn xsb qymm xsb rqat bjvn pnetfn
jane and puff and spot and yertle diced
```

Example Output to Screen

```
Unable to decrypt message.
jane and puff and spot dice yertle
Unable to decrypt message.
```